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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,492	11/13/2001	Michael L. Frank	10001848-1	5612

7590 11/17/2004

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

SAMS, MATTHEW C

ART UNIT PAPER NUMBER

2643

DATE MAILED: 11/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/008,492

Applicant(s)

FRANK, MICHAEL L.

Examiner

Matthew C. Sams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms "first node" and "node B" without mentioning where the "first node" and "node B" are physically located renders claim 5 indefinite.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Franca-Neto (US-6,721,544 herein after, Franca-Neto).

Regarding claim 1, Franca-Neto discloses a differential radio that includes an antenna with an input and output (Fig. 1 [18 & 22]), a differential duplexer (Col. 2 lines 31-34), a differential low noise amplifier (Col. 3 lines 60-64), digital circuitry for signal

processing (Col. 1 lines 38-48), distortion isolation (Col. 3 lines 60-62), and a differential power amplifier (Col. 3 lines 60-67).

It is well known in the art that the term differential implies accommodations for two signals in the circuit components. As is stated in the applicant's specification, an antenna is inherently differential (Paragraph [0004]). Franca-Neto does not explicitly state including differential filters and differential mixers, but it is well known in the art that a signal processing circuit encompasses filters and mixers.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franca-Neto in view of Ruby et al. (US-2002/0153965 herein after, Ruby).

Franca-Neto discloses the limitations of claim 1, but differs from the claimed invention in not specifically claiming the duplexer is a film bulk acoustic resonator. However, Ruby discloses a duplexer structure made with FBAR technology to be used with personal communication systems. (Page 1 [0004 & 0009]) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the duplexer of Ruby in the differential radio like that of Franca-Neto. One of ordinary skill in the art would have been motivated to do this since the duplexer's passband edges can be tailored without significantly affecting the fabrication process. (Page 3 [0024])

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franca-Neto in view of Sainton et al (US-6,134,453 herein after, Sainton).

Franca-Neto discloses the limitations of claim 1, but differs from the claimed invention in not specifically claiming the antenna being the form of a Yagi-Uda. However, Sainton discloses a radio communications circuit with a Yagi antenna. (Col. 6

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lines 45-55) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the differential radio of Franca-Neto with the Yagi antenna like that of Sainton. One of ordinary skill in the art would have been motivated to do this since a Yagi antenna allow for transmitting and receiving in different transceiver ranges. (Col. 6 lines 45-55)

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franca-Neto and Sainton as applied to claim 5 above, and further in view of Podgorski (US-6,075,495).

Franca-Neto and Sainton disclose all of the limitations of claim 3 above, but differ from the claimed invention in not specifically stating that the antenna could be incorporated into the printed circuit board. However, Podgorski discloses an antenna that is incorporated into a printed circuit board. (Col. 2 lines 20-24) At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to use the differential radio with a Yagi antenna of Franca-Neto and Sainton while incorporating the antenna onto the printed circuit board like that of Podgorski. One of ordinary skill in the art would have been motivated to do this since having an antenna incorporated into a printed circuit board allows for communication at low and medium power levels. (Col. 2 lines 20-24)

Allowable Subject Matter

6. Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

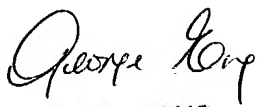
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Sams whose telephone number is (703)305-0810. The examiner can normally be reached on M-F 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (703)305-4708. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MCS
11/10/2004


GEORGE ENG
PRIMARY EXAMINER